ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

How a growth mindset enhances leadership quality

Barbara Hanfstingl

Content

1. Mindset and growth mindset: What is it?
2. Consequences of mindsets
3. What do we really know about growth mindset?
4. How to foster a growth mindset
5. Our ERASMUS+ project „GROWTHMINDS“
6. Studies on growth mindset and leadership

1. Mindset and growth mindset: What is it?

MINDSET QUIZ

1. Circle the number for each question which best describes you
2. Total and record your score when you have completed each of the 10 questions
3. Using the SCORE chart, record your mindset

	Strongly Agree	Agree	Disagree	Strongly Disagree
Your intelligence is something very basic about you that you can't change very much				
No matter how much intelligence you have, you can always change it quite a bit				
Only a few people will be truly good at sports, you have to be born with the ability				
The harder you work at something, the better you will be				
I often get angry when I get feedback about my performance				
I appreciate when people, parents, coaches or teachers give me feedback about my performance				
Truly smart people do not need to try hard				
You can always change how intelligent you are				
You are a certain kind of person and there is not much that can be done to really change that				
An important reason why I do my school work is that I enjoy learning new things				

Adapted from Dweck (2006)

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	Strongly Agree	Agree	Disagree	Strongly Disagree
Your intelligence is something very basic about you that you can't change very much	0	1	2	3
No matter how much intelligence you have, you can always change it quite a bit	3	2	1	0
Only a few people will be truly good at sports, you have to be born with the ability	0	1	2	3
The harder you work at something, the better you will be	3	2	1	0
I often get angry when I get feedback about my performance	0	1	2	3
I appreciate when people, parents, coaches or teachers give me feedback about my performance	3	2	1	0
Truly smart people do not need to try hard	0	1	2	3
You can always change how intelligent you are	3	2	1	0
You are a certain kind of person and there is not much that can be done to really change that	0	1	2	3
An important reason why I do my school work is that I enjoy learning new things	3	2	1	0

SCORE CHART
22-30 = Strong Growth Mindset
17-21 = Growth with some Fixed ideas
11-16 = Fixed with some growth ideas
0-10 = Strong fixed mindset

Adapted from Dweck (2006)

Mindset

Mindset is a collection/conglomerate of beliefs about the world, the social environment, or myself.

Mindsets are **implicit theories** of, e.g., **intelligence** (Dweck, 1999), **effort** (Spinath & Schöne, 2003), **failure** (Haimovitz & Dweck, 2016), **self-regulated learning** (Hertel & Karlen, 2020), or **volition** (Job et al., 2015).

Measurement overview: Reschke and Jude (2022) (German)

Mindset

Growth mindset: The belief that personal characteristics (e.g., intellectual ability) are changeable and can be developed (incremental theorists)

Fixed mindset: Personal characteristics are fixed and unchangeable (entity theorists
(Dweck, 1986)

In summary, mindset theory is a theory about responses to challenges or setbacks. It is not a theory about academic achievement in general [...] The theory predicts that mindsets should be associated with achievement, particularly among people who are facing challenges (Yeager & Dweck, 2020, p. 3f).

UPDATED EDITION

CAROL S. DWECK, Ph.D.

mindset

THE NEW PSYCHOLOGY OF SUCCESS

HOW WE CAN
LEARN TO FULFILL
OUR POTENTIAL

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*parenting
*business
*school
*relationships

"Through clever research studies and engaging writing, Dweck illuminates how our beliefs about our capabilities exert tremendous influence on how we learn and which paths we take in life."
—Bill Gates, *GatesNotes*

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2. Consequences of mindsets

Consequences of Beliefs

	Fixed Mindset	Growth Mindset
Goal in School?	Look Smart	Learn
Values effort?	No	Yes
Reaction to Failure?	Give Up	Work Harder

Blackwell et al., 2007

Goals

Looking smart is most important:

"The main thing I want when I do my schoolwork is to show how good I am at it."

	Fixed Mindset	Growth Mindset
Goal in School?	Look Smart	Learn
Values effort?		
Reaction to Failure?		

Learning is most important:

"It's much more important for me to learn things in my classes than it is to get the best grades."

PERTS

Blackwell et al., 2007

Value of Effort

	Fixed mindset	Growth mindset
Goals?	Look Smart	Learn
Values effort?	No	Yes
Reaction to Failure?		

Effort is **negative:**

"To tell the truth, when I work hard at my schoolwork it makes me feel like I'm not very smart."

Effort is **positive:**

"The harder you work at something, the better you'll be at it."

Blackwell et al., 2007

Response to Failure

	Fixed mindset	Growth mindset
Goals?	Look Smart	Learn
Values effort?	No	Yes
Reaction to Failure?	Give up	Work Harder

Helpless

"I would spend less time on this subject from now on."

"I would try not to take this subject ever again."

"I would try to cheat on the next test."

Resilient

"I would work harder in this class from now on."

"I would spend more time studying for the tests."

Blackwell et al., 2007

Consequences of Mindsets

	Fixed Mindset	Growth Mindset
Goal in School?	Look Smart	Learn
Values effort?	No	Yes
Reaction to Failure?	Give Up	Work Harder
Achievement	**Lower**	**Higher**

Blackwell et al., 2007

Summary: Students with a growth mindset…

- endorse learning/mastery goals / are more inclined to learn and master an ability (mastery-goal orientation; Burnette et al., 2013; Blackwell et al., 2007; Dweck & Yeager, 2019; Lou & Noels, 2016; Song et al., 2019),
- are more likely to attribute failure to controllable factors (Blackwell et al., 2007; (Song et al., 2019),
- persist in the face of setbacks/ can better cope with challenging/difficult situations (Blackwell et al., 2007; Lou & Noels, 2016; Paunesku et al., 2015; Smiley et al., 2016),
- are more motivated (Blackwell et al., 2007; Ng, 2018),
- cope better with transitions (Blackwell et al., 2007; Yeager & Dweck, 2012)
- develop better self-regulation (Burnette et al., 2013; Hertel & Karlen, 2021; Sriram, 2014)
- learn from mistakes (Mangels et al., 2006; Moser et al., 2011)

- There is no connection between mindset and tested intelligence (Spinath, 2001)

Indicators of a growth mindset

- **Indicator 1:** primary focus on developing student's skills and competences instead of letting them demonstrate their skills and competences.
- **Indicator 2:** information about effective learning strategies, and on how to effectively regulate and evaluate learning.
- **Indicator 3**: information about neuroplasticity (i.e. the inherent capacity of the brain to form new neural connections throughout life).
- **Indicator 4:** support of the belief that success is controllable by the students and dependent on their efforts.
- **Indicator 5**: supports students' need for autonomy, i.e. they can feel free and self-determined.
- **Indicator 6**: makes students aware that they have learned something and helps them experience their newly acquired competence.
- **Indicator 7**: support of students' need for feeling significant to others and connecting to others.
- **Indicator 8**: support of students' process-focused thinking.

Hanfstingl, et al., 2022

A theoretical perspective on a growth mindset

1. Beliefs and mindset on metacognition (how does memory/the brain work?; indicators 2, 3)
2. Attributional Style and Locus of Control (indicator 4)
3. Achievement Goal Orientation (indicator 1)
4. Self-determined motivation (indicators 5, 6, 7)

Hanfstingl, et al., 2022

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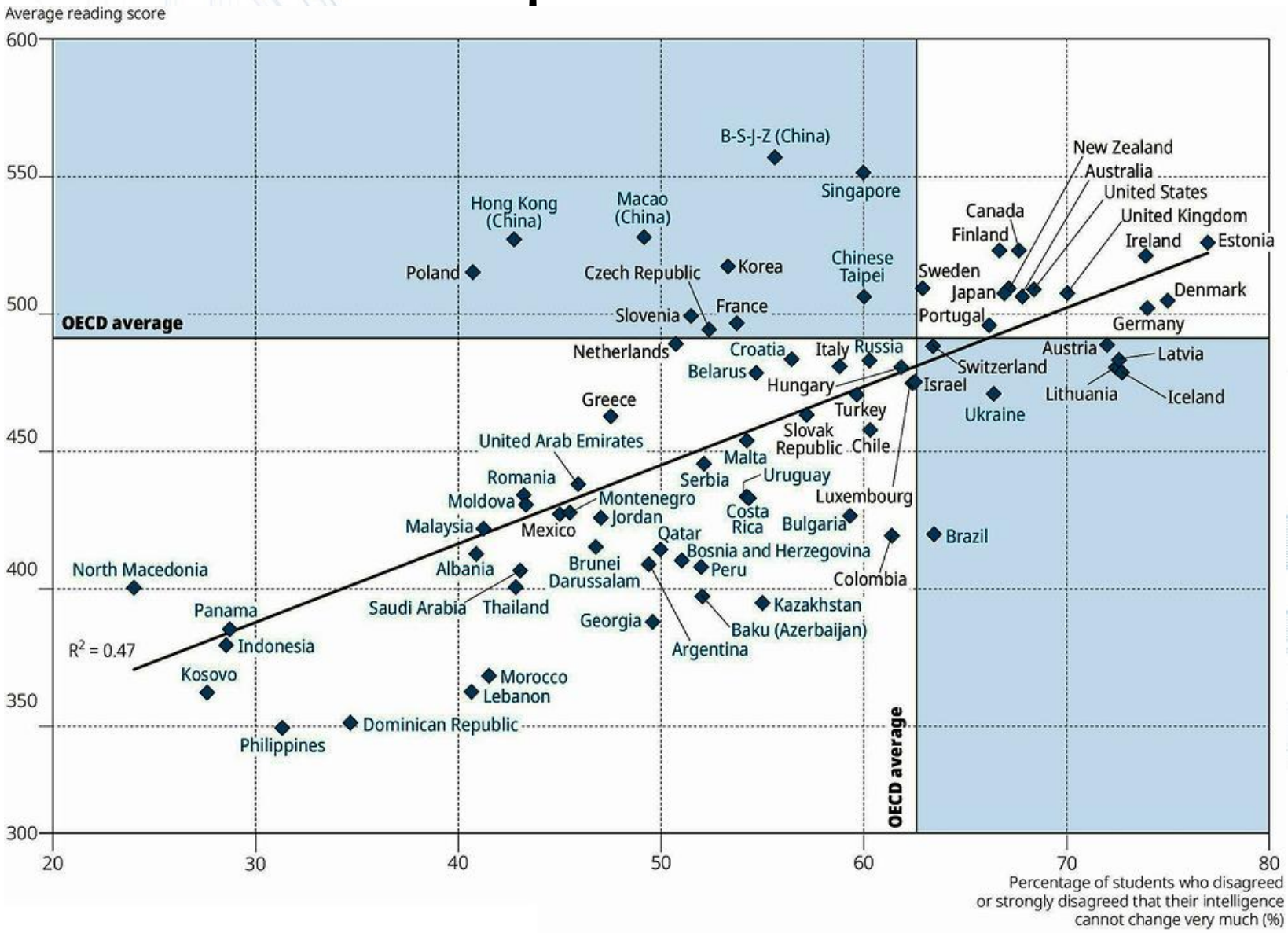
3. What do we really know about growth mindset?

Controversies (Yeager & Dweck, 2020)

1. Do mindsets predict student outcomes?
2. Do student mindset interventions work?
3. Are mindset intervention effect sizes too small to be interesting?
4. Do teacher mindset interventions work?

1. Do mindsets predict student outcomes?



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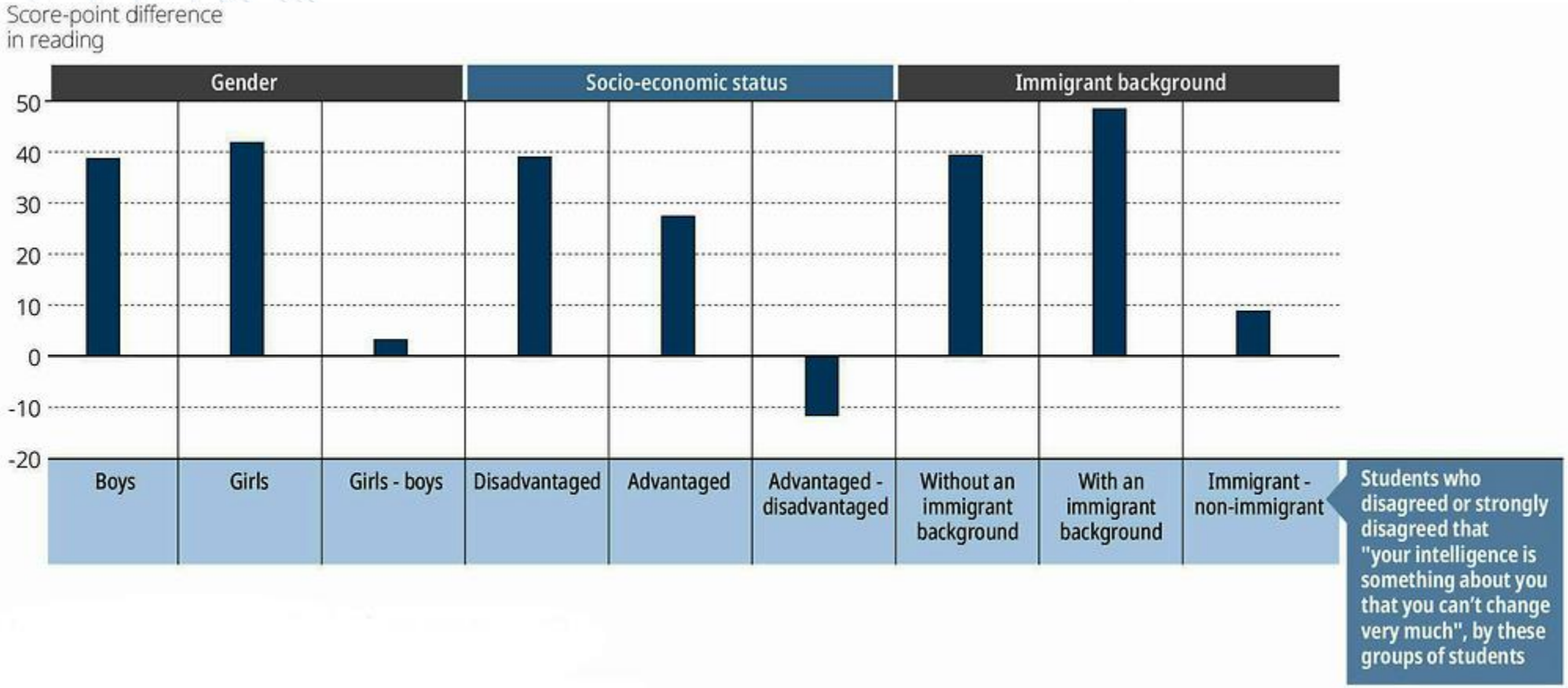
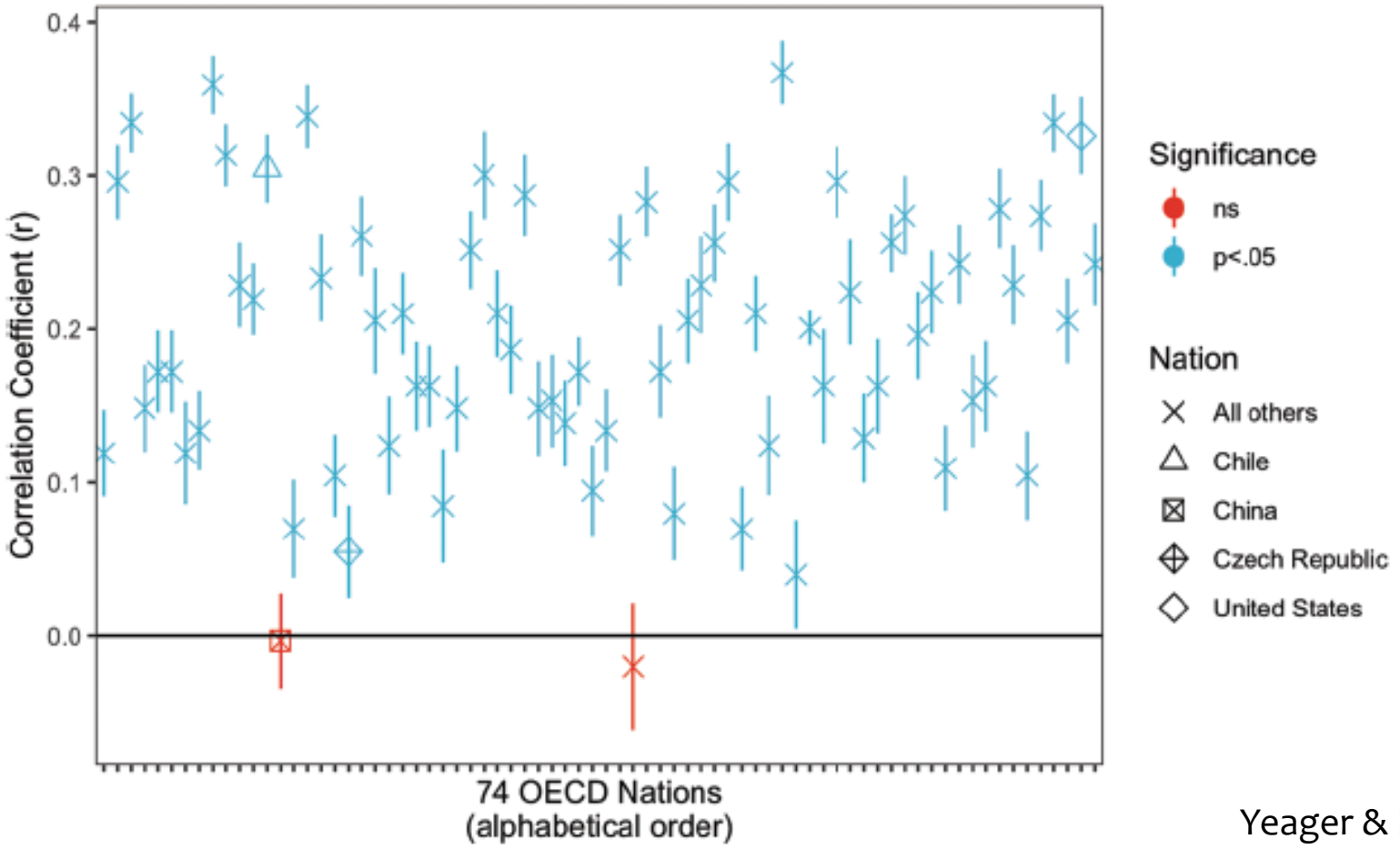


https://www.oecd-ilibrary.org/sites/bd69f805-en/index.html?itemId=/content/component/bd69f805-en

1. Do mindsets predict student outcomes?

Figure 1

Correlations Between Mindset and Test Scores in 74 Nations Administering the Mindset Survey in the 2018 PISA (N = 555,458)

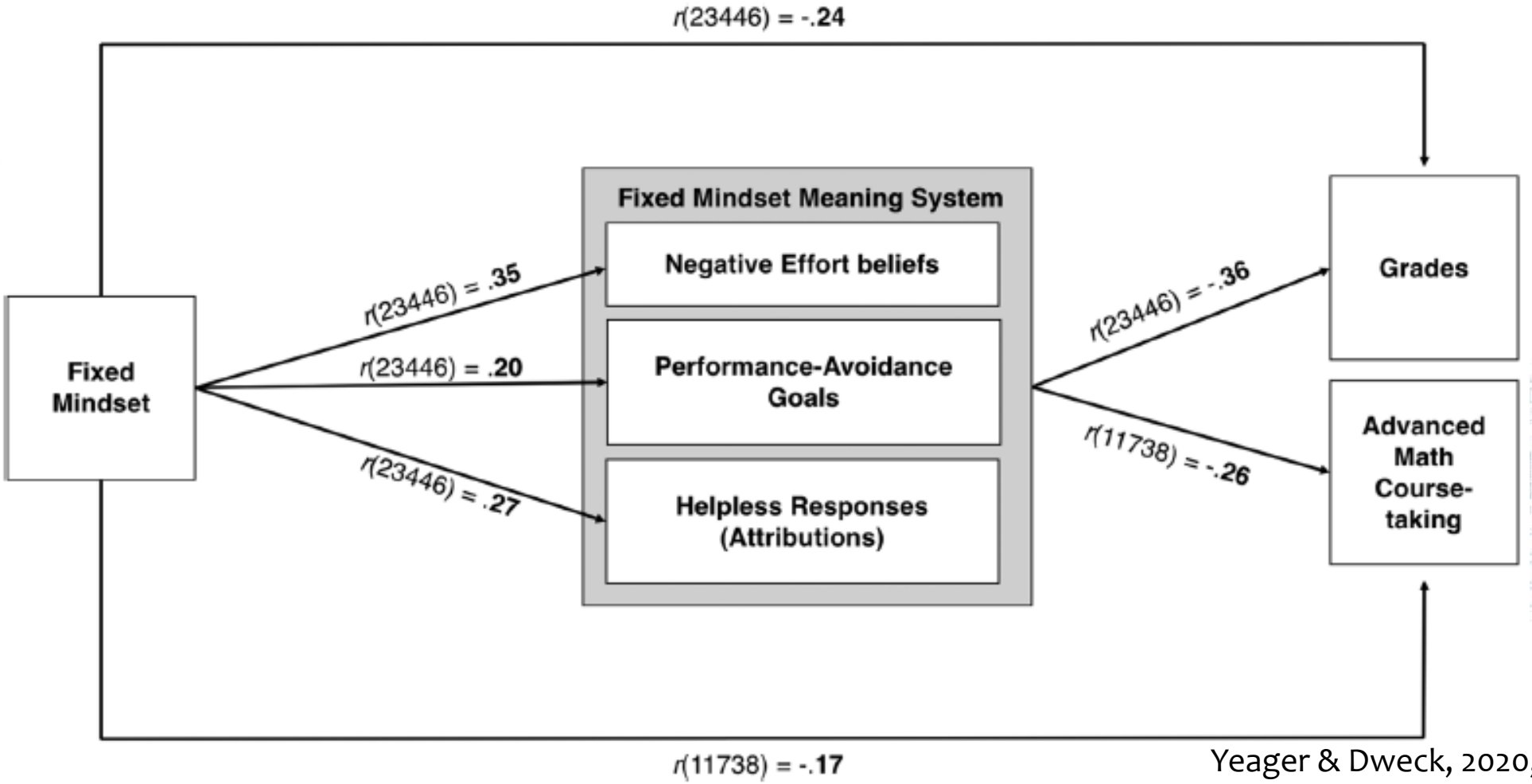


Yeager & Dweck, 2020, fig. 1

1. Do mindsets predict student outcomes?

Figure 2

The Correlation Between Fixed Mindsets, the Meaning System, and Academic Outcomes Were Replicated in Three Large Studies of First-Year High School Students in Two Nations

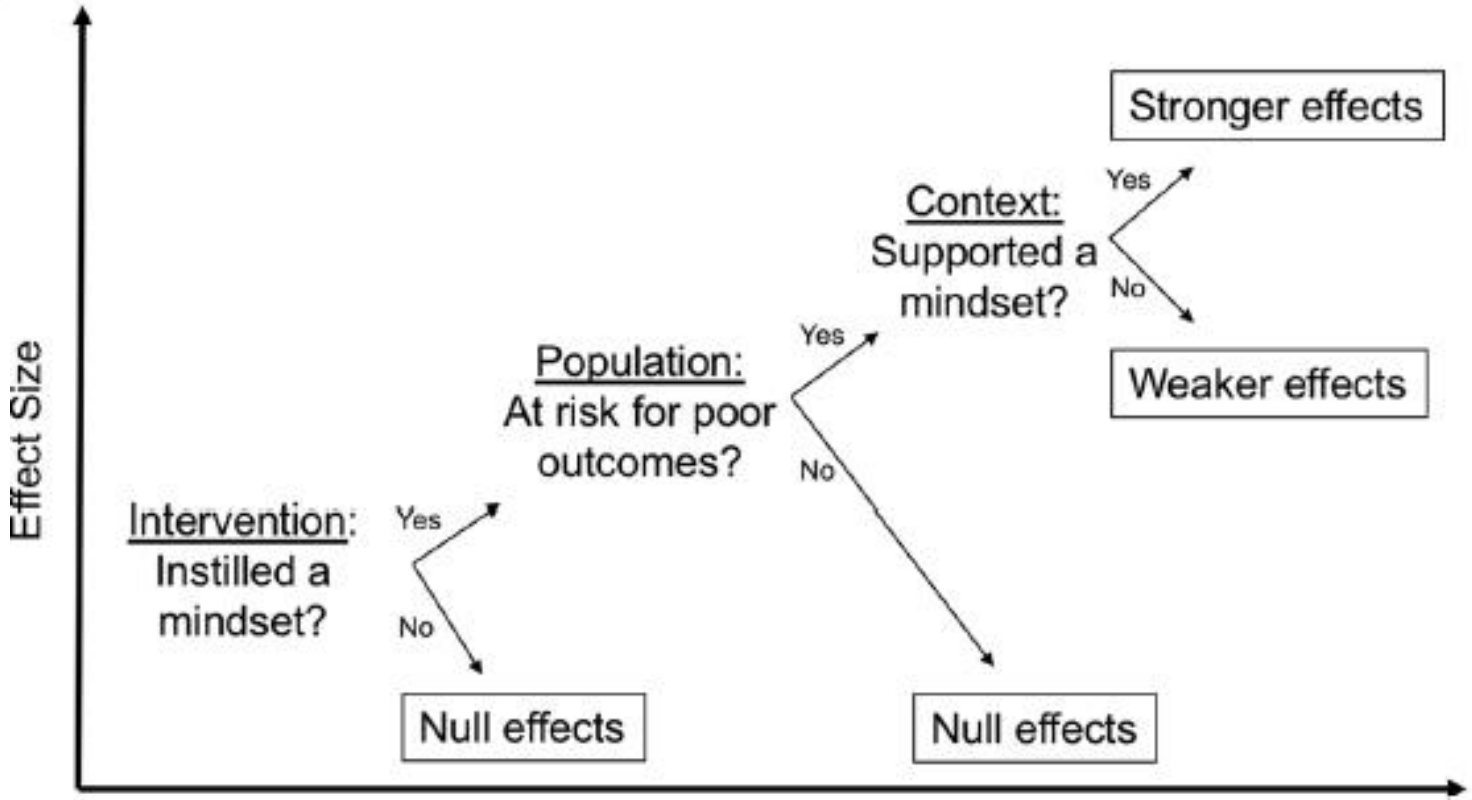


Yeager & Dweck, 2020, fig. 2

2. Do student mindset interventions work? A Mindset x Context Perspective

Figure 3

The Mindset × Context Perspective: A Decision Tree Depicts Questions to Ask About a Mindset Intervention, and What Kinds of Effect to Expect Depending on the Answer



Yeager & Dweck, 2020, fig. 3

3. Are mindset intervention effect sizes too small to be interesting?

Yeager and Dweck (2020) say **no** with **0.20** on average and argue that in educational intervention programs with "real life outcomes", in the field (and not based on expectations of laboratory results) effects of 0.15 or even 0.10 SD should be considered large (Kraft et al., 2020).

4. Do teacher mindset interventions work?

There is **no evidence** up to now that teacher mindset interventions work.

Open questions, and what we need to learn:
(a) precisely how to address teachers' mindsets about themselves and their students,
(b) which teacher practices feed into and maintain students' fixed and growth mindsets,
(c) how to guide and alter the teachers' practices, and
(d) how to do so in a way that affects students' perceptions and behaviors and that enhances students' outcomes.

Moreover, changing teacher behavior through professional development is known to be exceptionally challenging (Yeager & Dweck, 2020)

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4. How to foster a growth mindset

Teachers‘ knowledge about mind and beliefs?

Our hypothesis: Teachers should have professional knowledge about…

1. **Dynamics of beliefs and mindsets** (growth vs. fixed mindset)

2. **Scientific theories about**

   Cognitive development
   Metacognition and neuroplasticity
   Attributional style and locus of control
   Achievement goal orientation
   Self-determined motivation
   Personality
   Motivation, self-control, and self-regulation

How to foster a growth mindset concretely…

http://www.unigrowthminds.eu/index.php/infographics/

NEUROPLASTICITY

BRAIN'S SUPERPOWER

GROWTHMINDS

Did you know?

Neuroplasticity is the **capacity of the brain** to **shape** and **reform new neural connections** throughout life in response to experiences and changes in the environment (Kania et al., 2017).
Up until the 1960s, researchers believed that changes in the brain could only take place during infancy and childhood. As the study of modern neuroscience flourished, a body of research has demonstrated that **people are not limited to the mental abilities** they are born with. Brain continues to create new neural pathways and alter existing ones during the whole life (Demarin et al., 2014).

Ask yourself this...

1. Do I act like I'm in a hurry, during lectures?
2. Do I let students know that they can change their brains by studying?
3. Do I give students a sense of trust in them?
4. Am I sure my explanation is understandable?

Fun facts

1. MRI imaging of London taxi drivers revealed increased brain volume in the area responsible for memory (Maguire et al., 2000).
2. Research identify important functional and structural changes in the pianists brains (Pascual-Leone, 2001).
3. Teaching neuroplasticity has a positive overall effect on motivation, achievement, and brain activity (Sarrasin et al., 2018)

What can you actually do in the classroom?

- **Use revision constantly.** At the beginning of the lesson, have students briefly repeat the material from the previous lesson. Allow them to engage on their own, either in the form of complementarity brainstorming or individually, whatever they feel like. Remember, you are the one who guides them through memory. Resolve any problems vaguely along the way. Recalling a memory and going over material again helps the brain form stronger connections.
- **Don't be in a hurry.** Provide additional help to students with problems or just questions. When a student begins to get extra help and exercise more often, this causes literal changes in neural pathways and strengthens their abilities, and consequently also their faith and self-confidence.
- **Put new information into context.** When teaching new information, we encourage them to find a connection with the previous substance of the connection between the concepts. Whenever new content is given in such a way that students recognize relationships between concepts, they create higher brain cell activity and accomplish more successful long-term memory storage.
- Pay attention to the student's statements: »I can't« Remind them to use the words **»yet«** or **»currently«** instead of »can't«. When lecturing on topics they are not yet familiar with, include this words into your vocabulary as much as possible.

ENCOURAGING POSITIVE PERSEVERANCE

JUST KEEP SWIMMING!

GROWTHMINDS

Did you know?

Perseverance is described as a person's decision **to put out a high level of effort** (Bettinger et al., 2018). When confronted with a challenge, student with a growth mindset is more likely to persevere because of believing that with hard effort, perseverance and problem-solving, he may change his intelligence and skills (Dweck, 2017). Persistence **does not always mean working harder**, but it means **refusing to give up** just because something is hard (Jaffe, 2020).

Fun fact

Research showed that persistent interventions that shape students' beliefs in their ability to learn, have an **influence on students' perseverance** and **academic achievement in math, three weeks** after the interventions were implemented (Bettinger et al., 2018).

What can you actually do in the classroom?

Awareness of perseverance. We recommend that on the first day of class, you spend time discussing what it means to have tenacity, be persistent, and possess resilience. Let them share their personal experiences about how they persevered in previous years and what helped them in their motivation.
Ask students:

- Can you describe obstacle that hinders your motivation?
- What do you usually do when you hit obstacle?
- Why it is worth it to you to persevere and get through this challenging situation?

Remind them of achieving success.
For certain students keeping perseverance is a struggle, so they must always be remembered that they are capable of achieving success. Introduce to students that perseverance is not necessarily always investing more energy, but a process of not despairing in difficult situations. It is important to explain to students the options they have when encountering problems:

ENCOURAGING POSITIVE SELF-TALK

THE POWER OF THOUGHT

GROWTHMIN

Did you know?

Teachers have the potential to help students use the power of their inner speech to engage in positive self-talk and shift their mindset to growth mindset (Dweck, 2017). **Positive self-talk** helps them **develop** important **sk** and the **confidence** needed to succeed in learning (Robinson, 2017).

Good examples of students positive-self talk

»I will tackle this problem until it is solved.«
»I am a problem solver.«
»I will not give up easily.«
»I can do difficult things.«

What can you actually do in the classroom?

- **Recognize students' negative self-talk.**

  I am not good at this.
  I do not understand this.
  I can not do this.
  It's too difficult.
  I give up.

- **Use a catchphrase.** And teach them to hear their own negative self-talk. We ca help students who feel they are slipping into their fixed mindset by becoming aware of their negative self-talk by humorously addressing their self-talk and t getting them back on the path to a growth mindset. When you notice negativ self-talk, you can greet their inner voice: »Hi, Silly. Are you in his head again? We don't need you here.«

PROCESS-ORIENTED FEEDBACK

MASTERING THE ART OF FEEDBACK

GROWTHMINDS

Did you know?

The messages you provide **affect** what **students believe about themselves** and consequently **how they learn**. It is important to change feedback from one that praise intelligence to one that **praise effort and progress** (Dweck, 2006). The student's technique for spotting mistakes is process oriented-feedback provided by professor, which is also critical for the growth mindset (Hattie & Timperley, 2007). **Feedback** that is **frequent** and **in time,** is beneficial to long-term memory and reasoning development (Van de Bergh et al., 2014).

Ask yourself this...

1. Do I give feedbacks that are praising students' process or praising their characteristic and attributes?
2. Do I give more oral or written feedbacks?
3. How students react to my feedbacks?

What can you actually do in the classroom?

- **Person vs. Process Feedback**

Person: directing praise or critique at the person. It doesn't matter if the label is positive or negative, both can negatively affect their identity.	**Process**: focusing our praise or critique on the effort and methods used to complete the process.
YOU are so smart.	I admire how you used a variety of techniques to solve these issues.
YOU are just not good enough.	You didn't achieve your goal, but what did you learn from that?

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5. ERASMUS+ project GROWTHMINDS

Partners of the ERASMUS+ project GROWTHMINDS

- UNIVERZA NA PRIMORSKEM UNIVERSITA DEL LITORALE (SLO)
- STEP Institute, zavod za psihologijo dela in podjetnistvo (SLO)
- Balıkesir University (TUR)
- Universitatea de Medicina, Farmacie, Stinte si Tehnologie George Emil Palade din Tîrgu Mureş (ROM)
- University of Klagenfurt (AUT)

Intellectual Outputs (IOs)

- IO 1: COLLECTION OF GM TOOLS
- IO 2: CPD COURSE CURRICULUM
- IO 3: GM TEACHING PRACTICES
- IO 4: GM WEBINAR FOR STUDENTS

Website: http://www.unigrowthminds.eu/

HOME PROJECT OUTPUTS RESOURCES ACTIVITIES CONTACT

Home

Growth mindset indicators

GM indicators are a result of studying theories and that is strongly associated with growth versus fixed mindset in the literature. If a teaching activity fulfils many of these

IO 1: COLLECTION OF GM TOOLS

OUTPUT 1
COLLECTION OF GM TOOLS

OUTPUT 2
CPD COURSE CURRICULUM

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GM TEACHING PRACTICES

OUTPUT 4
GM WEBINAR FOR STUDENTS

COLLECTION OF GM TOOLS

In this section, articles and collection of GM tools prepared by our project team based on the literature and that instructors can interest in are included.

Articles

Infographics

GM Teaching Materials & Tools

- What is a growth mindset oriented teaching?
- Growth mindset indicators
- Theories underlying indicators for growth/fixed mindset evaluation
- The Perils and Promises of Praise
- "I am not a math person" – Changing your attitude towards math through the free online student course "How to learn Math"
- How to recognise students with fixed and growth mindsets?

Articles

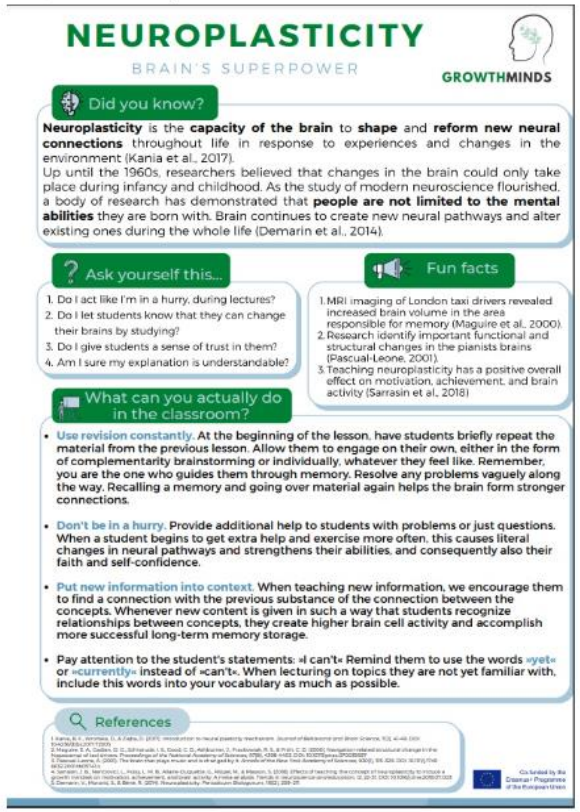
Infographics

GM Teaching Materials & Tools

Infographics are available in English, Slovenian, Turkish, German and Romanian. Please find the links.

▲ Neuroplasticity

Click picture to enlarge



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- Pay attention to the student's statements: »I can't« Remind them to use the words »yet« or »currently« instead of »can't«. When lecturing on topics they are not yet familiar with, include this words into your vocabulary as much as possible.

References

▸ Learning for success

▸ Failure is success if we learn from it

Articles | Infographics | GM Teaching Materials & Tools

▲ **Growth Mindset Theory**

Growth Mindset Theory by Ebru Ersarı

Click on the link –>Growth Mindset Theory

▲ **What is GM Teaching?**

What is GM Teaching? by Blanka Tacer & Ana Arzenšek

Click on the link –> What_is_a_growth_mindset_teaching

▲ **Growthmind Tasks**

Growthmind Tasks by Blanka Tacer

Click on the link –> GM Tasks

▶ **Growthmind Language**

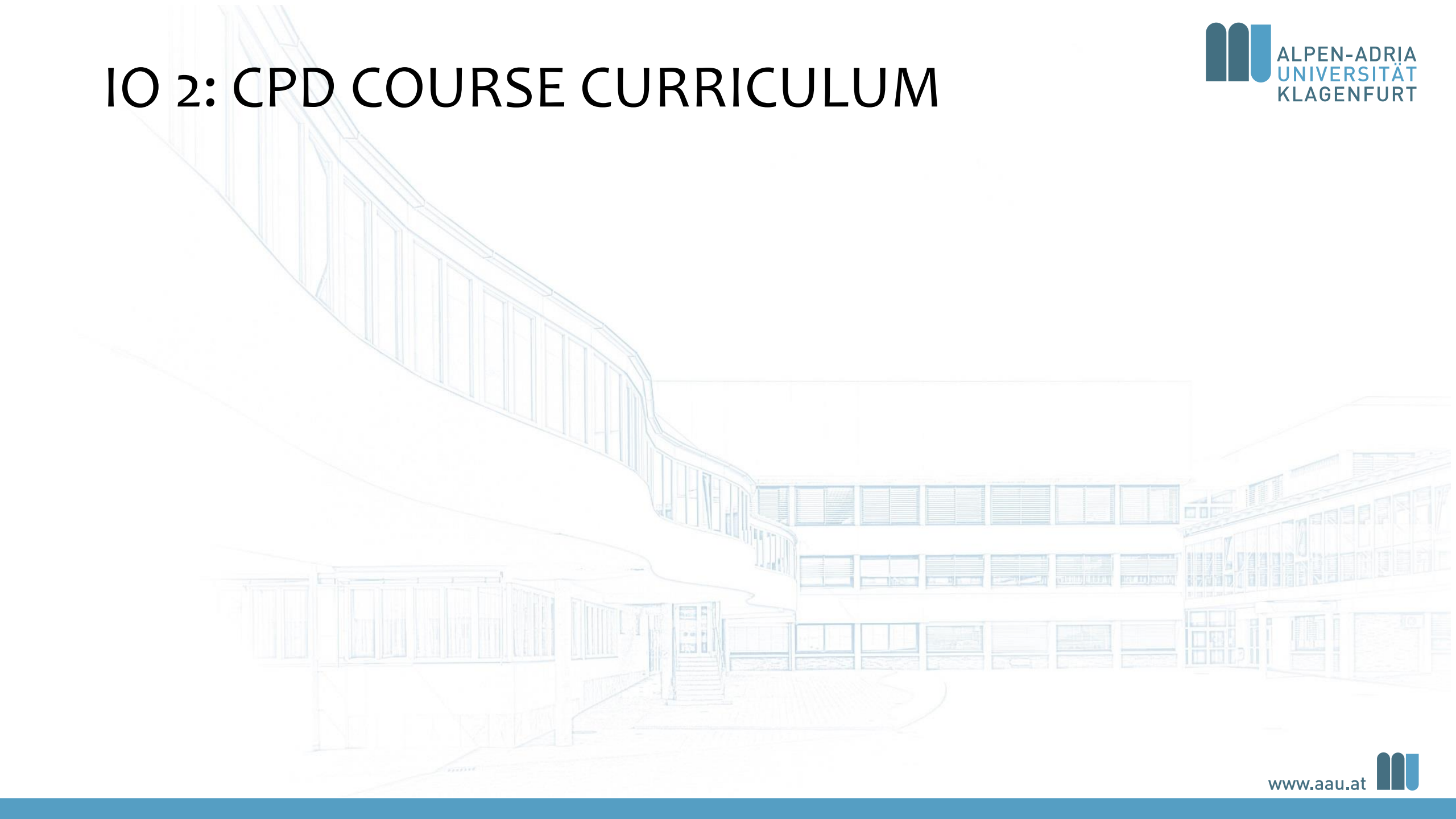
▶ **Mindset Indicators**

▶ **Growthmind Tools in Motivating Students**

▶ **Mindset (Presentation in Slovenian)**

▶ **Growth Mindset & Fixed Mindset (Presentation in Turkish)**

IO 2: CPD COURSE CURRICULUM



OUTPUT 1
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GM WEBINAR FOR STUDENTS

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CPD COURSE CURRICULUM

GrowthMind CPD Curriculum and Self-Directed Learning Activities

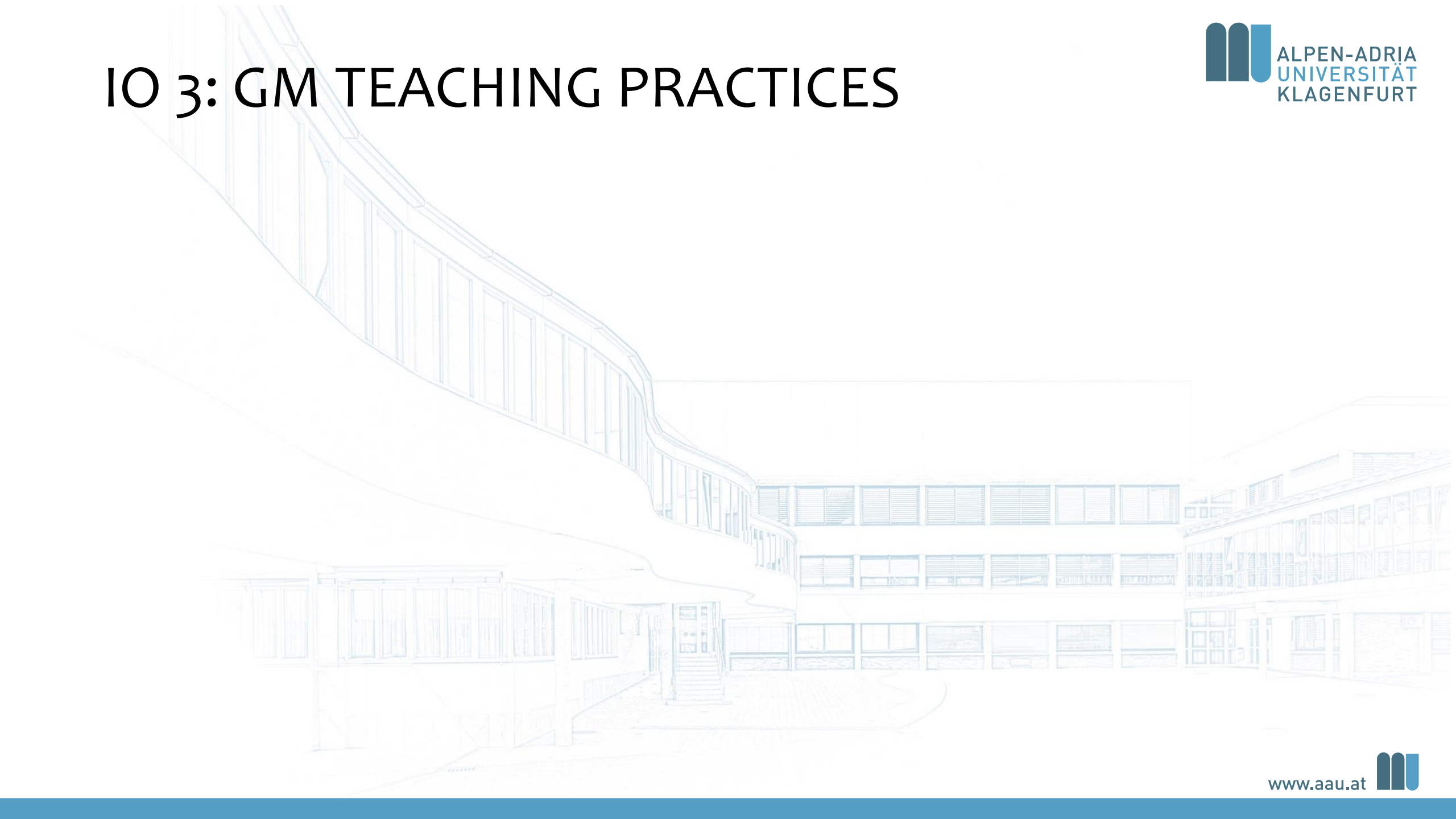
GrowthMinds continuous professional development (CPD) course curriculum with learning outcome matrix (LOM) for tertiary level educators is available in Slovenian, Turkish, German and Romanian. Please find the links.

Turkish Version
Romanian Version
German Version

Module 1 | Module 2 | Module 3 | Module 4 | Module 5 | Module 6

	LEARNING OUTCOMES: On completion of this course, the participants will be able to....			
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Module 1: Mindset theory and Mindset in Higher education	–define the concept of mindset –describe the difference between growth and fixed mindset –know various interventions for changing mindsets –explain how and why teacher's mindset effects teacher's practices	–recognize thoughts and behaviors, related to fixed or growth mindset in oneself and in their students –reflect on their own beliefs regarding the nature of abilities, importance of effort and perseverance,	Mindset Theory –Fixed and Growth mindset –Mindset –Academic motivation and achievements –Common misconceptions	Lecture, discussion, multimedia, quizzes, self-assessment self-directed learning

IO 3: GM TEACHING PRACTICES



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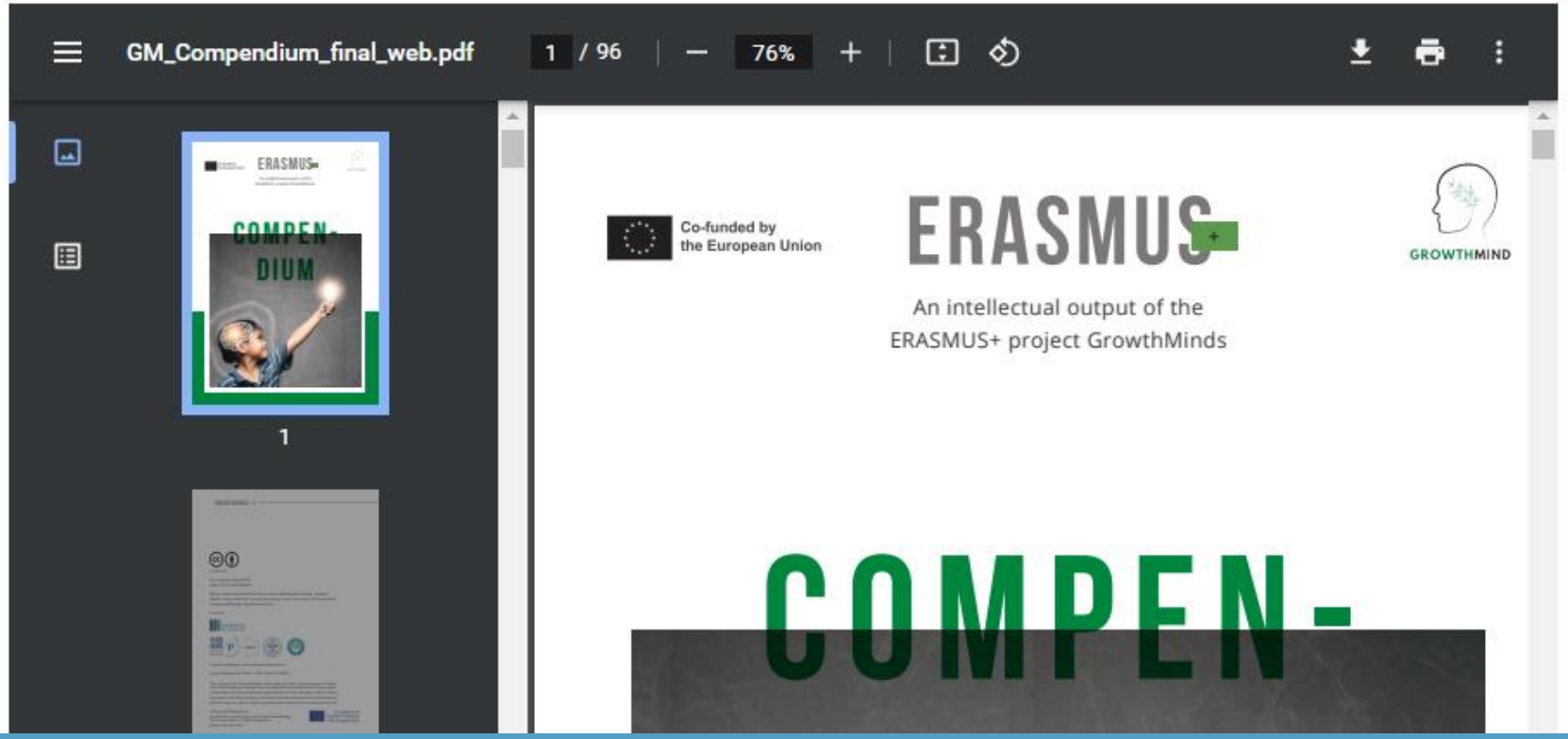
GM TEACHING PRACTICES

Compendium of Teaching Practices is intended to provide interested teachers with a guide for implementing growth-oriented teaching. It consists of four parts. In the first part, we present psychological theories that form the basis for a growth-oriented mindset. From these theories, we deduced indicators that make it easier to orient ourselves on those theories. In the second part, we provide a collection of best practice examples

Compendium of Teaching Practices



IO 4: GM WEBINAR FOR STUDENTS

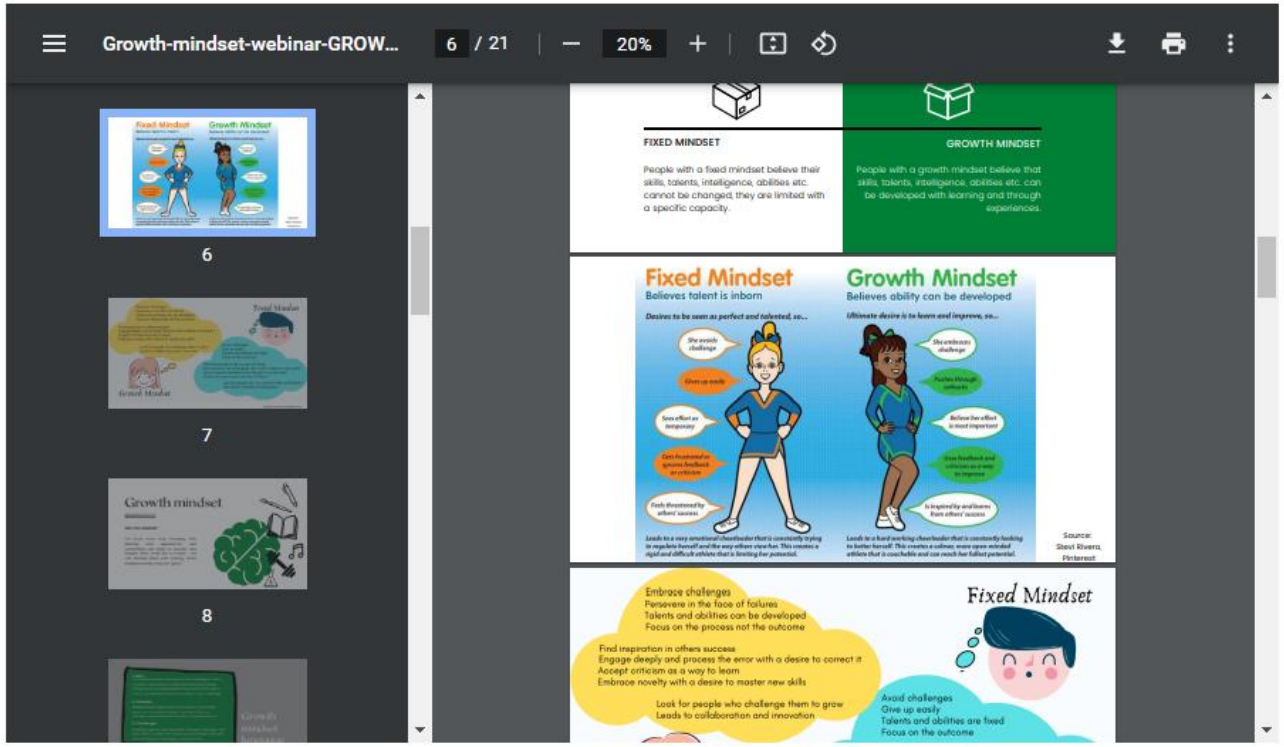
GM WEBINAR FOR STUDENTS

GM Webinar for Students aims to;

– awareness of fixed and growth mindset among students,
– increased self-efficacy of students regarding their learning performance;
– better learning skills.

Please click on the link for presentations in Slovenian, Romanian, Turkish and German (PowerPoint File).

Growthmindset



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6. Studies on growth mindset and leadership

Quest, 2010, 62, 296-307

Should Coaches Believe in Innate Ability? The Importance of Leadership Mindset

Melissa A. Chase

The purpose of this article is to examine how individuals' personal beliefs about the antecedents of leadership ability influence their leadership behavior and ultimate effectiveness. The relevant literature is reviewed to highlight current thinking in relation to the debate over whether leadership is innate or learned. A leadership mindset that differentiates between a fixed or a growth mindset (Dweck, 2006) is presented. A person with a *fixed mindset* would view leadership as an innate quality, or believe that people are born leaders. A person with a *growth mindset* would believe that leadership abilities can be learned and acquired through effort and experience. The leadership mindset is a critical component related to effectiveness and success as a leader. Coaching education and leadership training programs should consider focusing on helping coaches and leaders develop a growth mindset about their leadership abilities, and suggestions are offered for ways to incorporate the study of and emphasis on a growth leadership mindset in sport.

"Leaders are made, they are not born. They are made by hard effort, which is the price which all of us must pay to achieve any goal that is worthwhile" (Lombardi, 2009). This statement by Vince Lombardi, legendary football coach for the Green Bay Packers, sparks an interesting debate among coaches and scholars. Is it possible for anyone to be a great coach or leader if he or she works hard enough? Are there some qualities that effective coaches and leaders possess that are truly

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Mind the mindset! The interaction of proactive personality, transformational leadership and growth mindset for engagement at work

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Abstract

Purpose – The purpose of this paper is to analyze whether and how employees' proactive personality is related to work engagement. Drawing on job demands-resources theory, the study proposes that this relationship is moderated by a three-way interaction between proactive personality × transformational leadership × growth mindset.

Design/methodology/approach – The study is based on survey data from 259 employees of an internationally operating high-tech organization in the Netherlands.

Findings – In line with prior studies, support is found for positive significant relationships of proactive personality and transformational leadership with engagement. Additionally, transformational leadership is found to moderate the relationship between proactive personality and work engagement, but only when employees have a growth mindset.

Originality/value – The study advances the literature that investigates the proactive personality-engagement relationship. Specifically, this study is the first to examine a possible three-way interaction that may deepen the insights for how proactive personality, transformational leadership and growth mindset interact in their contribution to work engagement.

Keywords Mindset, Work engagement, Transformational leadership, Proactivity, Implicit theories
Paper type Research paper

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Influence of managers' mindset on leadership behavior

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Abstract

Purpose – The purpose of this paper is to focus on exploring the link between managers' mindset (fixed vs growth) and their choice of leadership behaviors.
Design/methodology/approach – The sample was drawn from a proprietary database provided by a global organization that offers 360-degree online leadership surveys. Individuals in management positions provided an assessment of their mindset orientation as well as how often they engaged in various leadership behaviors.
Findings – Growth-minded managers consistently displayed more frequent use of leadership behaviors than did their fixed mindset counterparts; and this relationship was independent of demographic or organizational factors.
Research limitations/implications – The findings are consistent with previous mindset research but prominently extend those results to managers in corporate settings; and supports previous research regarding the limited influence of demographic and organizational factors on both mindset and leadership.
Practical implications – Managers' mindsets influence how much they engage in various leadership behaviors, and improving leadership competencies is more likely to occur when managers hold a growth mindset that abilities can be developed through effort as compared to fixed mindset managers who believe that abilities are inherent and unchangeable. The mindset of managers is predictive of the behavioral choices they make about exercising leadership, and has practical significance since studies have shown that managers are generally more effective in direct relationship to how often they are seen as engaging in leadership.
Originality/value – This study extends the significance of mindset from the educational to the corporate environment, using a robust sample of managers, and finding that the relationship between mindset and leadership is independent of various demographic and organizational characteristics.

Keywords Leadership, Leadership Practices Inventory, Mindset, Growth mindsets

Paper type Research paper

Introduction

sustainability

MDPI

Article

The Roles of Transformational Leadership and Growth Mindset in Teacher Professional Development: The Mediation of Teacher Self-Efficacy

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Abstract: This study investigated the effects of school-related factors (i.e., transformational leadership) and teacher-related factors (i.e., teachers' growth mindset and self-efficacy) in teachers' sustainable professional development, as indicated by their reported desirable professional attitudes and their adoption of teaching strategies using the method of structural equation modelling. Based on a questionnaire survey of 1297 teachers in China, the results of this study showed that, compared with teachers' growth mindset, transformational leadership had a stronger effect on teacher self-efficacy; transformational leadership, rather than teachers' growth mindset, was significantly and directly related to teachers' professional attitudes towards classroom teaching and their adoption of desirable teaching strategies. Moreover, teacher self-efficacy significantly mediated the effects of transformational leadership and growth mindset on teachers' professional attitudes and the adoption of desirable teaching strategies. These findings highlight the importance of teachers' affective attributes (e.g., growth mindset, self-efficacy, and professional attitudes) in teacher professional development, and provide implications for school leaders and teachers to sustain effective teacher professional development.

Keywords: teacher self-efficacy; professional attitudes; growth mindset; transformational leadership; teaching strategies; sustainable teacher development

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Growth Mindset for Human Resource Development: A Scoping Review of the Literature with Recommended Interventions

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Abstract

Although the concept of mindsets is relatively ubiquitous in the common press and well-studied in the education literature, the idea of a growth mindset, rooted in implicit theories is less represented in human resource development (HRD)

Three levels of human resource development (Han & Stieha, 2020)

1. individual-level outcomes (e.g., work engagement, creativity, task performance, job satisfaction),
2. dyadic-level outcomes (e.g., supervisor-employee relationship and conflict resolution), and
3. organizational-level outcomes (e.g., organizational citizenship behaviors and organizational growth mindset).

Three levels of human resource development (Han & Stieha, 2020)

Table 2. Summary of HRD-related Outcomes of Mindsets Investigated, Methods, and Settings of Mindset Research.

Authors	HRD level outcomes *(I) Individual, (D) Dyadic, (O) Organizational*	HRD-related outcomes of mindsets investigated *(1) Focus; (2) How study addresses mindset to HRD-related outcomes*	Research methods *(1) Research design: Experimental design, Quasi experimental, Case, Survey, Qualitative (2) Mindset as variable (3) Growth, fixed, or both (4) Methods details*	Research Settings *Organization type(s) (country/ies)*
Caniëls et al. (2018)	I, D	(1) Examined the relationship between proactive personality and work engagement; (2) Study findings demonstrate a positive relationship between mindset and employees' work engagement.	(1) Survey; (2) Mindset as an antecedent of work engagement. (3) Growth mindset measured (4) Tests a three-way model with proactive personality interacting with a growth mindset, moderated by transformational leadership contributing to work engagement.	Corporate (Netherlands)
Cutumisu et al. (2018)	I	(1) Examined the moderating role of a growth mindset for health care providers' performance on a target task during and after a neonatal resuscitation training program; (2) Study findings demonstrated higher growth mindset is associated with better performance.	(1) Quasi-experimental (2) Mindset as a predictor variable (3) Growth mindset measured (4) Growth mindset tested as a predictor variable for performance on a refresher training game.	Hospital simulation training lab (Canada)
Gutshall (2013)	D	(1) Investigated instructors' perceptions of malleability of others' abilities given scenarios regarding learning disabled students; (2) Findings show a positive correlation between teacher's mindset (fixed or growth) regarding malleability of students' academic ability regardless of learning disability.	(1) Experimental design; (2) Mindset was measured as a predictor variable for stability of intelligence beliefs; (3) Growth & fixed mindset was measured; (4) Experimental design with 3 item fixed mindset scale and reverse scored positive responses. Teachers randomly assigned to read a student case followed by beliefs about students' ability questionnaire.	Non-profit -school teachers (USA)
Hanson, et al. (2016)	O	(1) Measured organizational mindset of professionals relative to becoming more culturally responsive; (2) associational research into leaders' openness to change, staff openness to change, work locus of control, and organization's growth mindset.	(1) Survey research; (2) Growth mindset school (SGM) culture as organizational application of mindset theory; (3) SGM measured as outcome; (4) Correlational study: positive significant relationship among independent variables (principal openness to change, faculty openness to change, work locus of control). Multiple regression analysis supported IV's contribution to SGM.	Non-profit organization (USA)
Heslin et al. (2008)	D	(1) Tested malleability of one person's perception of another person's interaction style as fixed or growth through an intervention; (2) Intervention primes a growth mindset.	(1) Experimental design; (2) Growth mindset informs intervention with managers; (3) Growth mindset and fixed mindsets are discussed; (4) Minimal discussion of methods: Managers level of growth mindset predicted employee evaluations and the extent to which managers provided employee coaching.	Corporate (USA)
Karwowski, et al. (2019)	I	(1) Tested malleability of a growth mindset when creativity is activated; (2) Creative mindset (growth/fixed mindset about creativity abilities) is primed through interventions about creative thoughts and types of creativity.	(1) Experimental design; (2) Growth mindset is an outcome measure when various creativity types are activated; (3) Creative mindset scale (Karwowski, 2014) is measured; (4) Creative growth mindset increases when primed with creative thoughts activity and decreases with eminent/artist creativity.	Community sample (Poland)
Keena and Simmons (2015)	I	(1) Evaluated intervention designed to increase entrepreneurship behaviors; (2) Outcome of the intervention design is to foster entrepreneurial behavior informed by mindset theory.	(1) Qualitative; (2) Growth mindset literature is integrated into the intervention and analyzed in narrative analysis; (3) Growth mindset coded; (4) Discussion of narrative analysis with description of participants' outcomes.	Nonprofit (USA) [note – participants are prison inmates]
Özduran and Tanova (2017)	D, O	(1) Investigated organizational citizen behaviors (OCB) relative to a growth mindset; (2) Measured leaders' growth mindset finding there is a group effect of managers' mindsets which mediates coaching behaviors and impacts the culture of a department or team.	(1) Survey research; (2) Growth mindset is used as a predictor variable for OCB; (3) Growth and fixed mindset measured; (4) Multiple scales including validated 8-item mindset scale (Levy et al., 1998) as IV and OCB scales as the DV, coaching behavior rating as mediator variable.	Industry (Turkey)
Rattan and Dweck (2018)	I, D	(1) Studied prejudice in the workplace by priming for with growth vs. fixed mindset relative to subsequent workplace satisfaction and sense of belonging; (2) Found when targets hold a growth mindset and confront perpetrators of prejudice, growth mindset participants experienced more positive workplace outlook.	(1) Experimental; (2) Growth mindset as a predictor variable for positive expectations following prejudice confrontation and positive workplace outlook; (3) Growth and fixed mindsets measured and manipulated; (4) Four studies three measured malleability beliefs of fundamental characteristics, beliefs, and personalities and outcome expectations. One manipulated mindset to prime a mindset condition.	Various (USA & England)
Shapcott and Carr (2019)	D	(1) Exploring coaches' mindsets about athletes' ability and impact on player feedback, and whether coaches' mindsets about golf ability by gender are malleable; (2) Finds growth/fixed mindset about beliefs in player ability differs by player gender and impacts feedback response.	(1) Two studies: survey research and quasi-experimental design; (2) Growth mindset as a predictor variable for gender differences in player ability, feedback type, and malleability of golf ability beliefs; (3) Growth-mindset items; (4) Validated 4-item growth mindset scale (study 1); theories of others' ability (Dweck, 2000) and priming to manipulate coach mindset.	Professional Golf Associations (USA and United Kingdom)
Wang et al. (2018)	D	(1) Explored leader humility and growth mindset theory; (2) Found a leader's growth mindset and relational identity were significantly related to leader humility.	(1) Two studies: survey research; (2) Leaders growth mindset as an antecedent for leader-expressed humility; (3) 8-item "incremental theory of self" (Levy et al., 1998); (4) Participant groups included leaders and subordinates. Leaders completed scale measuring growth/fixed mindset and follower's task performance while subordinates assessed leaders' humility, relational energy, their own emotional exhaustion, and perceived leader power.	Businesses (China)
Zeng et al. (2019)	I	(1) Investigated the relationship among growth mindset, work engagement, effort perseverance, and well-being for secondary educators; (2) Finds growth mindset predicted well-being and perseverance of effort contributing to a model to increase work engagement.	(1) Survey research; (2) Teachers' growth mindset as a latent variable; (3) Growth mindset scale measured; (4) Structural equation modelling demonstrated significant and positive relationship between predictor variables (growth mindset, perseverance of effort, well-being) and the outcome variable (work engagement).	Secondary school teachers (China)

Individual-level outcomes
(Han & Stieha, 2020)

- Higher work engagement (Caniëls et al., 2018; Zeng et al., 2019),
- Improved task performance (Cutumisu et al., 2018),
- Creative activities (Karwowski et al., 2019), and
- Workplace satisfaction (Rattan & Dweck, 2018).

Dyadic-level outcomes
(Han & Stieha, 2020)

- Improved relationships based on feedback and coaching (Gutshall, 2013; Özduran & Tanova, 2017; Rattan & Dweck, 2018; Shapcott & Carr, 2019),
- Positive influence of managers on their teams (Caniëls et al., 2018; Heslin & VandeWalle, 2008; Wang et al., 2018).
- Priming growth mindset, however, effectively reduces coaches' bias leading to an increased performance of athletes (Caniëls et al., 2018)
- Fixed mindset managers were less likely to recognize the extent to which the employee's performance had improved, and 6 weeks after receiving the intervention, these managers changed their perceptions and provided employees with more coaching suggestions (Heslin & VandeWalle, 2008).
- Growth mindset of a leader often shows an increase in humility in their behavior, which can impact relational and task performance of team members (Wang et al., 2018).
- Transformational leadership has shown to be more effective in the presence of employees with a growth mindset (Caniëls et al., 2018).

Organizational-level outcomes (Han & Stieha, 2020)

- Organizational-level outcomes are related to cultural and system variables, such as creating a culture of organizational learning and increasing collective efforts for the organization's improved overall performance,
- Leaders' growth mindsets have been demonstrated to impact the overall organization through their influence on employees (Özduran & Tanova, 2017),
- Managers with higher growth mindset levels demonstrated effective coaching behaviors that had a mediating effect on the organizational citizenship behaviors of their employees and led to higher levels of the organizational citizenship behaviors (Özduran & Tanova, 2017).
- A growth mindset helps leaders and staff foster positive relationships, effective communication, and collaborative efforts (Hanson et al., 2016),
- A "school growth mindset" is comprised of "common vision, sharing knowledge, support, and resources" (Blackwell, 2012, as cited in Hanson et al., 2016, p. 225).

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Thanks!